The Effects of a Season's Competition of Elite Collegiate Ice-Hockey Players

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Introduction

An extensive amount of research into the concept of "the self" has been conducted over the last few decades. Much of the research has focused on the impact of success or failure on the individual's self-concept, with academic attainment receiving the most attention in this regard (Song & Hattie, 1985).

Within the realms of sport and physical education, inquiries have been primarily concerned with the effects of improved physical condition on the individual's self-concept or, more commonly, self-esteem (Bartley & Belgrave, 1986; Brown and Harrison, 1986; Young, 1985).

Others have delved into the possible relationship between self-concept and participation, mastery and achievement in a myriad of related activities including baseball, swimming and American football (Hawkins and Gruber, 1982; Ibrahim and Morrison, 1986; Rudisill, 1986).

This study attempted to look specifically at elite athletes, specifically elite, collegiate-level ice-hockey players in the American Mid-West, and there were three main purpose of the research. The first purpose was to determine if there were any significant changes in the self-concept of an elite team of hockey players after a season of competition. Next, the investigation focused on the possible occurrence of differences in self-concept between different positions, i.e., goalies, defenders, centres, and forwards. The final theme of the study concerned the potential relationship between coaches' player ratings and any changes in self-concept scores. The hypothesis formulated for the study was that there would be no significant changes in the measures of self-concept from the pre- to post-season stage. Nor would there be any significant relationship or differences between self-concept and the various positions or seasonal performance ratings.

Limitations of the Study

1. The sample size was relatively small and results may not be generalised to groups other than potential elite collegiate ice hockey players.

2. In their study of the influence of increased motor skill to self-concept Folkins & Sime (1981) point out that any changes measured may be transitory and not permanent shifts in self-concept. This

hypothesis may also apply to the present study, particularly in the light of the assertion that after a certain age self-concept remains relatively stable (Felker & Kay, 1971).

3. Results may have been influenced by the coaches particular style, i.e., stressing predominantly positive or negative feedback. This effect has been highlighted by Sander (1981).

4. Another potential limitation concerned the influence of success and failure on the athlete's perception of self. Although the team in question reached the NCAA Final Four Tournament, they managed to finish third, a disappointment to many. No assessment was taken of the athlete's perceptions of how successful or unsuccessful they thought the season had been, and it seems likely that, if anything were to influence self-concept, success, or lack of it, might be prominent.

5. Any changes in self-concept that may have occurred could have been simply the result of maturation and no control group of non-participants of a similar age was established to measure this variable.

Definition of Terms

Self-Concept-The mental image or perception that one has of oneself (The American Heritage Dictionary of the English Language, 2009); the whole set of attitudes, opinions, and cognitions that a person has of himself (Collins English Dictionary, 2003); the way a person thinks about their abilities in a variety of facets of life, including academics, athletics and social interactions (Manning, 2011).

Self-Esteem-Generally regarded as the evaluative component of self-conception (Gergen, 1971). In the literature reviewed self-concept and self-esteem were often used interchangeably. Emphasis on the esteem aspect of self-conception is probably derived from its motivational significance, that is, an individual's behaviour is presumed to be dependent on self-esteem.

Tennessee Self-Concept Scale-A widely used and well respected psychological inventory designed by William Fitts and first published in 1965. The Scale consists of 100 self-referent statements to which the examinee responds on a five-point rating scale extending from "completely true" to "completely false". It is self-administering, with either individuals or groups, useable with people aged 12 or older (presuming 6th grade reading ability), and applicable to persons manifesting a broad range of psychological adjustment.

Procedures

Selection of the Sample

The subjects participating in the study were 35 volunteer males competing of varsity positions on the 1986-87 University of Minnesota varsity ice hockey team. Only 24 players, however, completed the entire season of play and could be described as useful subjects. The age of the participants ranged from 18 to 23. The subjects volunteered and participated under the guidelines and protocol of the University of Minnesota Committee on Human Subjects.

The subjects were administered the TSCS before and after the 1986-87 intervarsity season.

Sources of Data

Self-concept measures were collected using the well-established Clinical and Research form of the Tennessee Self-Concept Scale (TSCS).

Using the TSCS enabled the author to break self-concept down into a number of more specific components, e.g., the Physical Self, The Family Self, and the Moral-Ethical Self, as well as yielding a Total Self-Concept score.

Player position was also determined from demographic measures gathered, while, in order to determine coaches' rankings, the six varsity coaches were asked to rate members who participated in the study throughout the season. The coaches were asked to rank the players according to how much each individual team member (goalies excluded) contributed to the overall success of the team during the course of the season.

Collection of Data

Participants were administered the psychological test before school began at the beginning of the University of Minnesota fall quarter, 1986. At this time the purpose of the study was explained and signed consent forms were collected. The athletes were instructed to read the directions relating to the test, and return them to the researchers upon completion.

At the end of the season, the subjects were administered the same psychological test and were instructed to return them to the researchers upon completion.

The game performance statistics were recorded by a trained team of investigators during the 1986-87 season at all home games, including play-offs. A research team of three people was used to collect the various offensive and defensive game data.

After the psychological data had been collected, the six coaches were asked to rank 25 players who had played varsity ice hockey for them during the season. The coaches were instructed to rank from

1 to 22 the contributions of each player as they related to the overall success of the team during the season in question. The ranked players were then divided into three groups; high, medium, or low team performance contributors.

Treatment of Data

A number of Tennessee Self-Concept Scale variables were selected for the analysis. These were the Total Positive P+N scores for Physical, Moral, Personal, Family, and Social Self as well as the Total Positive Scores for Identity (i.e., "what I am"), Self-Satisfaction (i.e., level of self-acceptance), and Behaviour (i.e., "this is what I do or this is the way I act"). In addition, scores for Self-Criticism, Total Variability (measuring the level of inconsistency from one area of self-perception to another), Total Distribution (measuring the degree of certainty about the way one sees oneself), and most importantly, Total P+N (reflecting the overall level of self-esteem), were used.

Initially data for the team as a whole was tested for significant changes between pre- and post-test stages using the standard T test. T tests were again used for the analysis of the different positions (goalies, defenders, centres, and forwards), and of the coaches' ranking groups.

Results

Whole Team Analysis

No significant differences between pre-and post-test scores were found on any of the variables for the team as a whole, measuring at the .05 level of specificity. However, when comparing the mean scores for the whole team with means for Fitts' (1965) Norm Group, it can be seen that the hockey team in question scored lower than the Norm Group on all variables. The differences that exist are consistent at both the pre- and post-test stages and are seen most markedly in the Physical P+N, Identity P+N, Acts P+N, and the total P+N variables.

Also of note is the fact that there exists a much smaller variance in the hockey group for every variable except Total Distribution, which has a markedly greater variance than the norm group, and Self-Criticism as demonstrated by the standard deviations.

Positional Analysis

After dividing the subjects into four positional groups, i.e., goalies, defenders, centres, and forwards, a similar, non-significant pattern emerged. For goalies, the Acts variable and the Total P+N score were closest to being significant at the .05 level (they were

significant at close to the .08 level). However, these were the only two variables that came close to being significant for any of the positional groups.

Coaches' Ranking Analysis

When the team was divided into the three groups according to how the coaches had assessed their value to the team, most of the variables were similarly non-significant but some do show significance at the .05 level.

Group 1, the highest ranked collection of players, manifested a significant decrease in Total Variability at the .05 level of significance. The middle ranked Group 2 showed a significant decrease in the Self-Criticism variable at the .025 level.

Although the Acts variable for Group 2 and the Accepts variable for Group 3 do not show significance at the .05 level they are very close to being significant (their 2-tail probability scores are .058 and .052 respectively).

Discussion

The most notable finding of this present study seems to be that, for the whole team, the means for most of the self-concept scores are well below the means for the norm group at both the pre- and post-test stages. Discrepancies are most notable for the Physical P+N, Identity P+N, Acts P+N, and Total P+N variables. This would tend to suggest a number of things: the athletes in this study seem to possess a rather negative view of their bodies, their state of health, their physical appearance, skills, and sexuality; they would appear to have a markedly low view of their basic identity, i.e., "what they are as they see themselves"; they seem to have somewhat negative perceptions about the way they behave or function; and their overall level of self-esteem, as measured by the Total P+N score, is low, suggesting doubts about their own self-worth, perhaps seeing themselves as somewhat undesirable, as well as possibly being anxious, depressed, and unhappy.

The results, showing these elite athletes to possess a generally low level of self-esteem, would tend to contradict the traditional view of sport as a "character builder" and would support the Ibrahim and Morrison (1976) study, which found that, in general, self-concepts of high school and college varsity athletes were lower than the average. The smaller variance exhibited by the hockey group compared to the norm group would suggest a greater degree of homogeneity for the athletes in question.

As has been shown, the positional analysis yielded no significant changes on any of the variables but it should be noted that the very small sample size for

each group is a pronounced limitation and the same limitation applies to the Coaches' Ranking analysis.

The highest rated players, those in Group 1, exhibited a significant decrease in their Total Variability score. This would suggest that these athletes had become somewhat less inconsistent from one area of self-perception to another. High scoring persons tend to compartmentalise certain areas of self and view these areas quite apart from the remainder of self. Well-integrated people generally score below the mean on these scores but above the first percentile.

Group 2 athletes manifested a significant decrease in their Self-Criticism score. High scores on Self-Criticism generally indicate a normal, healthy openness and capacity for self-criticism, while low scores indicate defensiveness, and suggest that the positive scores are probably artificially elevated by this defensiveness. The significant decrease in score may be the manifestation of a certain increase in defensiveness, perhaps caused by some performance variable. This is mere speculation and the post-test score still remains quite close to the norm.

Conclusions

The hypothesis that no change in self-concept would occur over a season of competition is supported by the whole team and the positional analysis. Results tend to indicate that this particular group of elite athletes had a general low overall self-concept. The coaches' rating analysis reveals that the highest ranked group experienced a significant reduction in the Total Variability score while Group 2 exhibited a reduction in the Self-Criticism variable. This latter result is perhaps the most interesting of the two: it is possible that this increased defensiveness shown by this middle-ranked group is a result of one or more performance variables.

The small sample size is a limiting factor in drawing any firm conclusions from these results, apart from indicating possible trends.

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